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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,626	10/11/2001	Keiichi Tanaka	0234-0421P	3843

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EXAMINER

JOHNSON, EDWARD M

ART UNIT PAPER NUMBER

1754

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/786,626

Applicant(s)

TANAKA ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-8, 12-16, and 18-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Heller et al. US 5,854,169.

Regarding claims 1, 15, 19, and 23 Heller '169 discloses a photocatalyst mixed with a polymer having an anionic group (see column 6, lines 40-49 and 58-67) that aids in removal of unwanted organic compounds (see Background section, first paragraph), which anionic group would inherently have an adsorption ability to a positive electric charge.

Regarding claims 7 and 8, Heller '169 discloses mixing, coating and drying (see Examples).

Regarding claim 2, Heller '169 discloses a linear polymer (see column 6, lines 64-65).

Regarding claims 3 and 5, Heller '169 discloses a particle diameter of 1-50 nm (see column 8, lines 39-41).

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Regarding claim 6, Heller '169 discloses adhering to a surface (see column 8, lines 53-56).

Regarding claims 12-14, 18, Heller '169 discloses titanium dioxide (see Example 1).

Regarding claim 16, Heller '169 discloses a fiber (see column 3, lines 10-11).

Regarding claims 20-22, Heller '169 discloses removal of unwanted organic compounds (see Background section, first paragraph).

Regarding claim 24, Heller '169 discloses having an anionic group (see column 6, lines 40-49 and 58-67), which anionic group would inherently have an adsorption ability to a positive electric charge.

Regarding claim 25, Heller discloses 27% polymer in a 99% water solution (see Example 3).

3. Claims 1-2, 6-8, 12-16, and 18-25, are rejected under 35 U.S.C. 102(b) as being anticipated by Murasawa et al. US 5,547,823.

Regarding claim 1, 15, 19, 23, Murasawa '823 discloses a photocatalyst composited with a polymer having an anionic group (see Example 1), which would inherently attract a positive charge, for waste purification (see column 1, lines 47-51).

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Regarding claims 7 and 8, Murasawa '823 discloses mixing, coating, and drying (see Example 1).

Regarding claim 2, Murasawa '823 discloses linear polymers (see column 3, lines 52-55).

Regarding claim 6, Murasawa '823 discloses a substrate (see abstract).

Regarding claims 12-14, 18 Murasawa '823 discloses titanium oxide (see abstract).

Regarding claim 16, Murasawa '823 discloses sheets (see column 4, lines 59-64).

Regarding claims 20-22, Murasawa '823 discloses waste purification (see column 1, lines 47-51).

Regarding claim 24, Murasawa '823 discloses a polymer having an anionic group (see Example 1), which would inherently attract a positive charge.

Regarding claim 25, Murasawa '823 discloses 0.8 g in 23.6 solution (see Example 1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

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the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 9-11, 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murasawa '823 as applied to claims 1 or 2 above, and further in view of Eckberg US 5,583,195.

Murasawa '823 fails to disclose a poly(fluorine-substituted sulfonic acid).

Eckberg '195 discloses coatings (see column 4, lines 43-48) of fluoro sulfonic acid polymer (see paragraph bridging columns 5-6).

It is considered that it would have use the fluoro sulfonic acid polymer of Eckberg to coat the photocatalyst of Murasawa because Eckberg discloses his polymers to coat photocatalysts in order to advantageously increase the quantum efficiency of photo-catalysts and overcome poor solubility (see column 3, lines 19-26) and because Murasawa discloses mixing specifically with "fluorinated polymers" (see column 3, lines 38-50).

Response to Arguments

6. Applicant's arguments filed 3/19/04 have been fully considered but they are not persuasive.

The rejection under 35 USC 112(2) has been withdrawn in view of Applicant's preliminary amendment and remarks.

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It is argued that the Examiner asserts that Heller... anionic groups. This is not persuasive because the cited polymers have anionic -groups-, which disclosure anticipates the claim. Applicant also does not claim a particular amount of binder. It is noted that the features upon which applicant relies (i.e., an anionic polymer, rather than a polymer having anionic groups or a particular % of binder) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that further, Heller teaches... backbone atoms. This is not persuasive because claims 4 and 9-11 are not rejected over Heller, as Applicant appears to suggest.

It is argued that the Examiner asserts that Example 1... anionic group. This is not persuasive because Applicant appears to admit that such a polymer is disclosed, since it contains an anionic group (see above).

It is argued that at page 4, lines 24-25... (see column 38-50). This is not persuasive because Murasawa is not relied upon for the specifically claimed polymers, which are disclosed in Eckberg. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of

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references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Further, Applicant appears to admit that polymers having anionic groups are disclosed. It is finally noted that Applicant correctly assumed the Examiner meant to refer to lines 38-50 of column 3, rather than columns 38-50, which Applicant points out do not exist.

It is argued that Murasawa and Heller are both similar... column 3, line 9. This is not persuasive because Applicant does not claim an "active molecule". It is noted that the features upon which applicant relies (i.e., an "active molecule") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that the Examiner turns to Eckberg... sulfonic acid. This is not persuasive because the substrate would be at least partially covered upon mixture with the photocatalyst. However, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to

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one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is considered that it would have used the fluoro sulfonic acid polymer of Eckberg to coat the photocatalyst of Murasawa because Eckberg discloses his polymers to coat photocatalysts in order to advantageously increase the quantum efficiency of photocatalysts and overcome poor solubility (see column 3, lines 19-26) and because Murasawa discloses mixing specifically with "fluorinated polymers" (see column 3, lines 38-50).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0987.

EMJ


STANLEY S. SILVERMAN
SUPERVISORY PATENT EXAMINER
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